

SECTION III—REMARKS

This amendment is submitted in response to the final Office Action mailed May 8, 2006. No claims are amended, and claims 24-41 remain pending in the application. Applicants respectfully request reconsideration of the application and allowance of all pending claims in view of the above amendments and the following remarks.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 24-37 under 35 U.S.C. § 103(a) as obvious in view of, and therefore unpatentable over, combinations of the following references: U.S. Patent No. 6,150,223 to Chern *et al.* ("Chern"); U.S. Patent No. 5,976,991 to Laxman *et al.* ("Laxman"); and U.S. Patent No. 5,679,589 to Lee *et al.* ("Lee").

Applicants respectfully traverse the Examiner's rejections. To establish a *prima facie* case of obviousness, three criteria must be met: (1) the prior art references must teach or suggest all the claim limitations; (2) some suggestion or motivation to combine the references must be found in the prior art; and (3) there must be a reasonable expectation of success. MPEP § 2143. As explained below, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness.

Claim 24 was rejected as obvious over Chern in view of Laxman. Claim 24 recites a process combination including:

forming at least one gate electrode over a substrate;

forming a first silicon oxide film conformally over the substrate and gate electrode from a combination of gases including bis-(tertiarybutylamino)silane and oxygen;

forming a silicon nitride film conformally over the first silicon oxide film from a combination of gases including bis-(tertiarybutylamino)silane;

forming a second silicon oxide film conformally over the silicon nitride film from a combination of gases including bis-(tertiarybutylamino)silane and oxygen; and

etching the first and second silicon oxide films and the silicon nitride film to form a two-part spacer, wherein the spacer includes

a first L-shaped part abutting the substrate and a sidewall of the gate electrode, and

a second L-shaped part nested in the first L-shaped part.

(emphasis added). The Examiner alleges that *Chern* discloses every element and limitation of the claim, except for using a specific precursor silane, such as bis-(tertiarybutylamino)silane, for the formation of the conformal oxide and nitride films. The Examiner cites *Laxman* to make up for this deficiency in *Chern* and concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine *Chern* with *Laxman* to arrive at the claimed combination.

Applicants respectfully disagree. The Examiner alleges that Fig. 5 of *Chern* discloses a portion 20B that corresponds to the recited first L-shaped part and a portion 24C that corresponds to the recited second L-shaped part. That cannot be, for two reasons. First, TEOS layer 20B is not L-shaped and therefore cannot correspond to "a first L-shaped part abutting the substrate and a sidewall of the gate electrode." Second, even if TEOS layer 20B could be considered to be L-shaped—which Applicants do not

concede—*Chern* discloses that only silicon oxide layer 24A/24B and silicon nitride layer 22A/22B are etched to form an L-shaped portion 22D and a portion 24C that is no L-shaped. *Chern* does not disclose, teach or suggest that TEOS layer 20B is etched. *Chern* therefore cannot disclose, teach or suggest a combination including “etching the first and second silicon oxide films and the silicon nitride film” to form a two-part spacer. *Laxman* discloses nothing whatsoever about spacers and therefore cannot cure the noted deficiencies of *Chern*. For the above reasons, Applicants submit that *Chern* and *Laxman* cannot obviate claim 24 and respectfully request withdrawal of the rejection and allowance of the claim.

Regarding claims 25-33, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 24 is in condition for allowance. Applicants submit that claims 25-33 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of the features recited therein. Applicants therefore respectfully request withdrawal of the rejections and allowance of these claims.

Claim 34 was rejected as obvious over *Chern* in view of *Laxman*. Claim 34 recites a process combination including:

forming at least one gate electrode over a gate dielectric layer, the gate dielectric layer disposed on a substrate;

depositing a first silicon oxide film conformally over the substrate and gate electrode from a combination of

gases comprising bis-(tertiarybutylamino)silane and oxygen;

depositing a silicon nitride film conformally over the first silicon oxide film from a combination of gases comprising bis-(tertiarybutylamino)silane and ammonia;

depositing a second silicon oxide film over the silicon nitride film from a combination of gases comprising bis-(tertiarybutylamino)silane and oxygen; and

etching the first and second silicon oxide films and the silicon nitride film to form a two-part sidewall spacer, wherein the sidewall spacer includes

a first L-shaped part abutting the substrate and a sidewall of the gate electrode, and

a second L-shaped part nested in the first L-shaped part.

(emphasis added). By analogy to the discussion above for claim 1, Chern and Laxm in, taken together, cannot obviate this claim because they do not disclose, teach or suggest every element and limitation of the claim. Applicants submit that new claim 34 is therefore allowable and respectfully request withdrawal of the rejection.

Regarding claims 35-41, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 34 is in condition for allowance. Applicants submit that claims 35-41 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of the features recited therein. Applicants therefore respectfully request withdrawal of the rejections and allowance of these claims.

Conclusion

Given the above amendments and accompanying remarks, all claims pending in the application are in condition for allowance. If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to allowance of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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Date: 7-10-06

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Enclosures: Amendment transmittal, in duplicate